IS 2963 : 2013
(Amalgamating IS 3311 : 1979)

(Reaffirmed 2018)

भारतीय मानक

सिंक व वॉश बेसिन के लिए तांबा मिश्र धातु के वेस्ट प्लग व फिटिंग — विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

COPPER ALLOY WASTE FITTINGS AND WASTE PLUG FOR WASH BASIN AND SINKS — SPECIFICATION

(Second Revision)

ICS 91.140.70

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

September 2013 **Price Group 4**

Sanitary Appliances and Water Fittings Sectional Committee, CED 03

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1964 to cover requirements for copper alloy waste fittings for wash basin and sink and subsequently revised in 1979. In this revision following major modifications have been made, keeping in view the practices being followed in the country and internationally:

a) IS 3311 : 1979 'Specification for waste plug and its accessories for sinks and wash basin (*first revision*)' has been amalgamated in this standard to cover requirements for both copper alloy waste fittings and waste plug for wash basin and sinks in one standard'.

b) New type of waste fitting, that is, pop-up waste and waste with cover has been included.

c) Dimensions of various components and raw material requirements have been specified as per current manufacturing practices in India.

d) Waste fitting of 40 mm for sink, has been included.

e) Performance test has been specified.

In view of amalgamation of IS 3311 with this standard, the revised IS 2963 : 2013 supersedes IS 3311 : 1979.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of specified value in this standard.

Indian Standard

COPPER ALLOY WASTE FITTINGS AND WASTE PLUG FOR WASH BASIN AND SINKS — SPECIFICATION

(Second Revision)

1 SCOPE

This standard covers the requirements for materials, manufacture, workmanship, nominal sizes and dimensions, finish and testing of copper alloy waste fittings and waste plugs to be used in wash basin and sinks complying with IS 771 (Part 2), IS 2556 (Part 4) and IS 2556 (Part 5).

2 REFERENCES

The standards listed in Annex A contains provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definition given in IS 10446 and the following shall apply.

3.1 Waste Outlet — A device fitted on the sanitary appliances where by the water can be evacuated from the bowl directly and through the overflow. It can be sealed by means of a flap or a plug with or without grill. Waste outlet without flap shall be with grill.

3.2 Overflow — A device whereby water can also be evacuated from the bowl over a certain level well above the waste outlet.

4 CLASSIFICATION

4.1 Waste outlets may be manufactured in one piece or may comprise various piece joined together mechanically.

4.1.1 Waste outlet without sealing by flap or plug is defined as grill waste outlet. This comprises of safety grill at the inlet intended to check objects which may fall into sanitary appliances.

4.1.2 Waste outlets with non-mechanical control are defined as plug waste outlet.

4.1.3 Waste outlet sealed mechanically by a flap is defined as pop-up waste outlet. This may be with or without grill. The mechanical control can either be internal or external.

4.1.4 Waste outlet may be with or without overflow slot, and if provided two slots on opposite sides are to be made.

5 MATERIALS

Materials used for different components shall be in accordance with Table 1.

Table 1 Material for Components of Waste Fittings
(*Clause* 5)

Sl No. (1)	Component (2)	Material (3)	Ref to Indian Standard (4)
i)	Body and back nut	a) Cast brass	Grade LCB2 of IS 292
		b) Die cast brass	Grade DCB2 of IS 1264
		c) Forged brass	Grade FLB of IS 6912
ii)	Plug or flap, grill pop-up waste mechanism, chain stay	a) Cast brass	Grade LCB2 of IS 292
		b) Die cast brass	Grade DCB2 of IS 1264
		c) Forged brass	Grade FLB of IS 6912
		d) Stainless steel	Grade 07Cr18Ni19 of IS 6603
		e) Rubber	IS 5192 (Part 1)
		f) Plastic	Polyaccetal, polypropylene, Nylon-polyamides
		g) Brass rod	Grade 1 Half hard of IS 319
		h) Brass sheet	Grade CuZn37 of IS 410
iii)	'O' Ring	a) Synthetic rubber	IS 9975 (Parts 1 to 4)
iv)	Gasket	a) Rubber	IS 5192 (Part 1)
v)	Chain, plug shackle	a) Brass wire	IS 2704
		b) Stainless steel	Grade 07Cr18Ni19 of IS 6603

6 MANUFACTURE AND WORKMANSHIP

6.1 Waste Fitting

The fittings shall in all respects be sound, free from laps, blow holes, pitting and other manufacturing defects. External and internal surface shall be clean and smooth. They shall be neatly dressed and if cast, shall not be burnt, plugged, stopped or patched. The body and nut shall be truly machined so that nut smoothly moves on the body.

6.2 Screw Threads

The outlet connection threads shall be pipe threads conforming to IS 2643.

6.3 Waste Plug and Chain

The waste plug shall be made of rubber of durable quality having sufficient chemical resistance to resist normal disinfectants used in cleaning wash basin and sinks. The depth and thickness of the plug shall be such as to provide and maintain required rigidity and water tightness.

The waste plug shall have a loose shackle which provides a suitable anchor for the plug chain.

One end of the chain shall be securely attached to the shackle of the waste plug and the other end to the shackle of the stay. The shank of the stay shall be fully threaded to the underside of flange.

7 NOMINAL SIZE AND DIMENSIONS

7.1 Nominal Size

Waste fitting for wash basin shall be of nominal size. Waste fitting for sink shall be of nominal size 40 and 50.

7.2 Dimensions

7.2.1 Waste outlet for wash basin shall conform to the values specified in Table 2 read with Figs. 1 to 4. Waste outlet for sink shall conform to the values specified in Table 3 read with Figs. 5 to 8. Waste plug with chain shall conform to the values specified with Fig. 9.

7.2.2 Except where a lesser thickness is specified, the fittings shall have a minimum thickness of 1.5 mm.

8 FINISH

8.1 The significant surface of brass waste fitting shall be nickel-chromium plated, complying with classification code Cu/Ni 10b Cr r of IS 1068.

NOTE — The significant surface is the part of surface, which being essential to the appearance or serviceability.

8.2 The brass chain with stay and shackle shall be nickel-chromium plated, complying with classification code Cu/Ni 05 b Cr r of IS 1068.

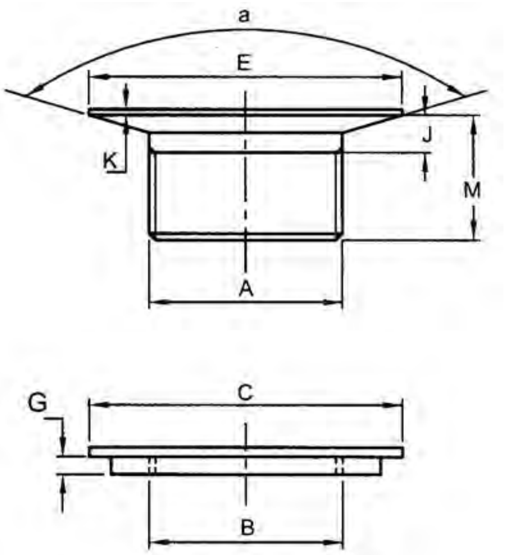


FIG. 1 WASTE OUTLET WITHOUT OVERFLOW

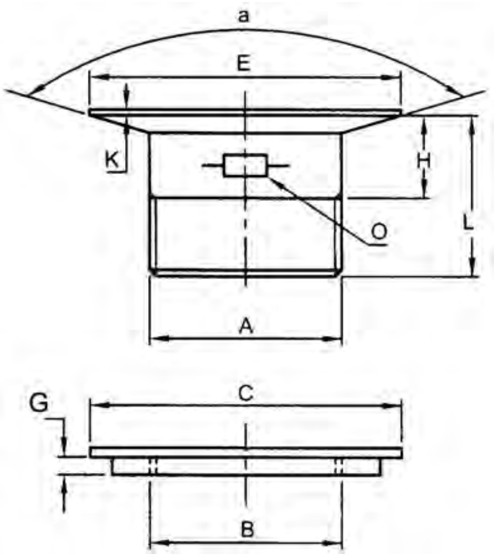


FIG. 2 WASTE OUTLET WITH OVERFLOW

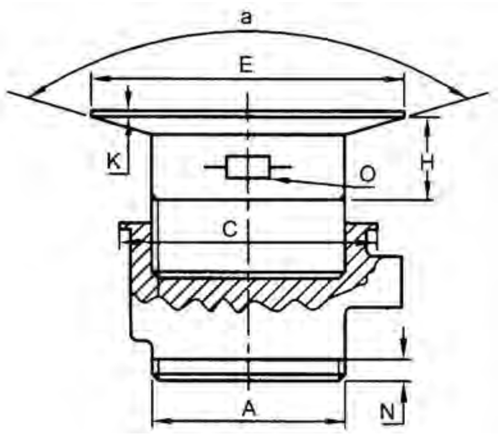


Fig. 3 Waste Outlet with Overflow and Pop Up Waste

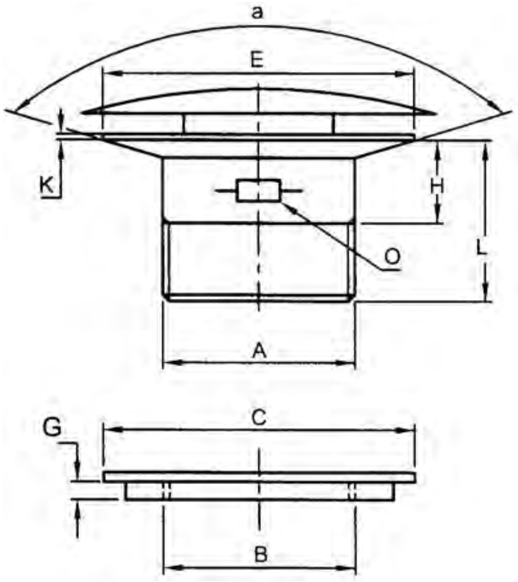


Fig. 4 Waste Outlet with Overflow and Cover

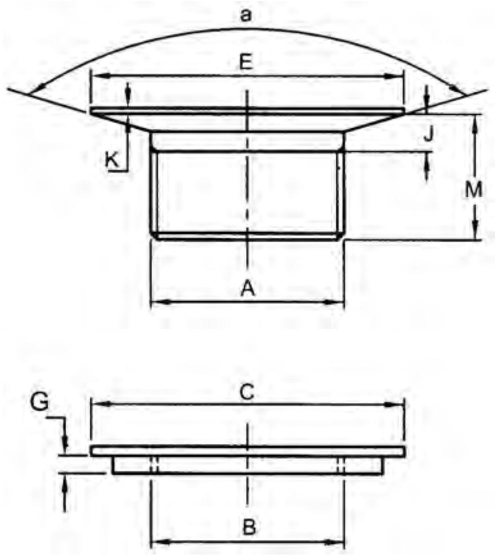


Fig. 5 Waste Outlet without Overflow

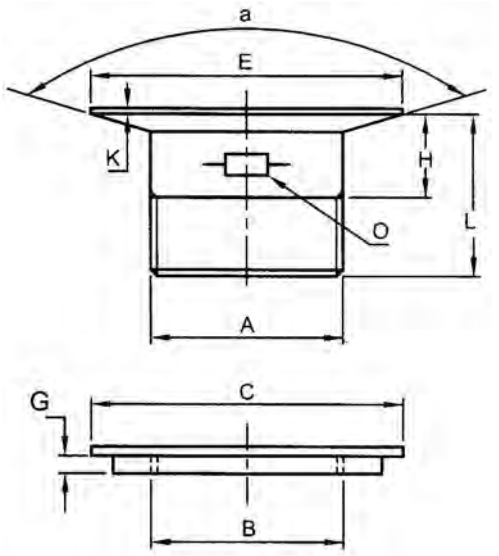


Fig. 6 Waste Outlet with Overflow

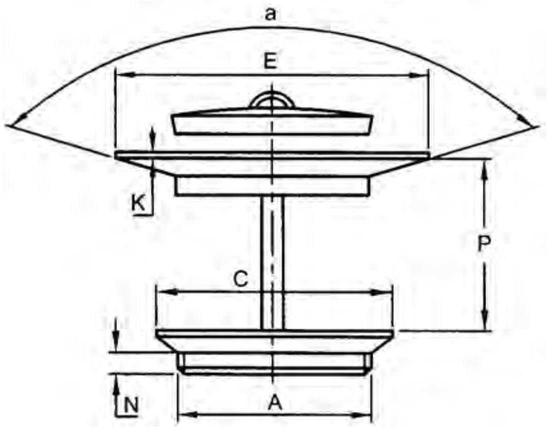


Fig. 7 Waste Outlet with Plug

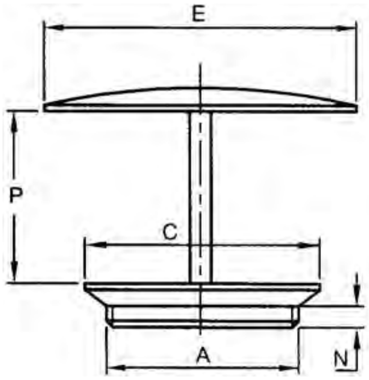


Fig. 8 Waste Outlet with Grill

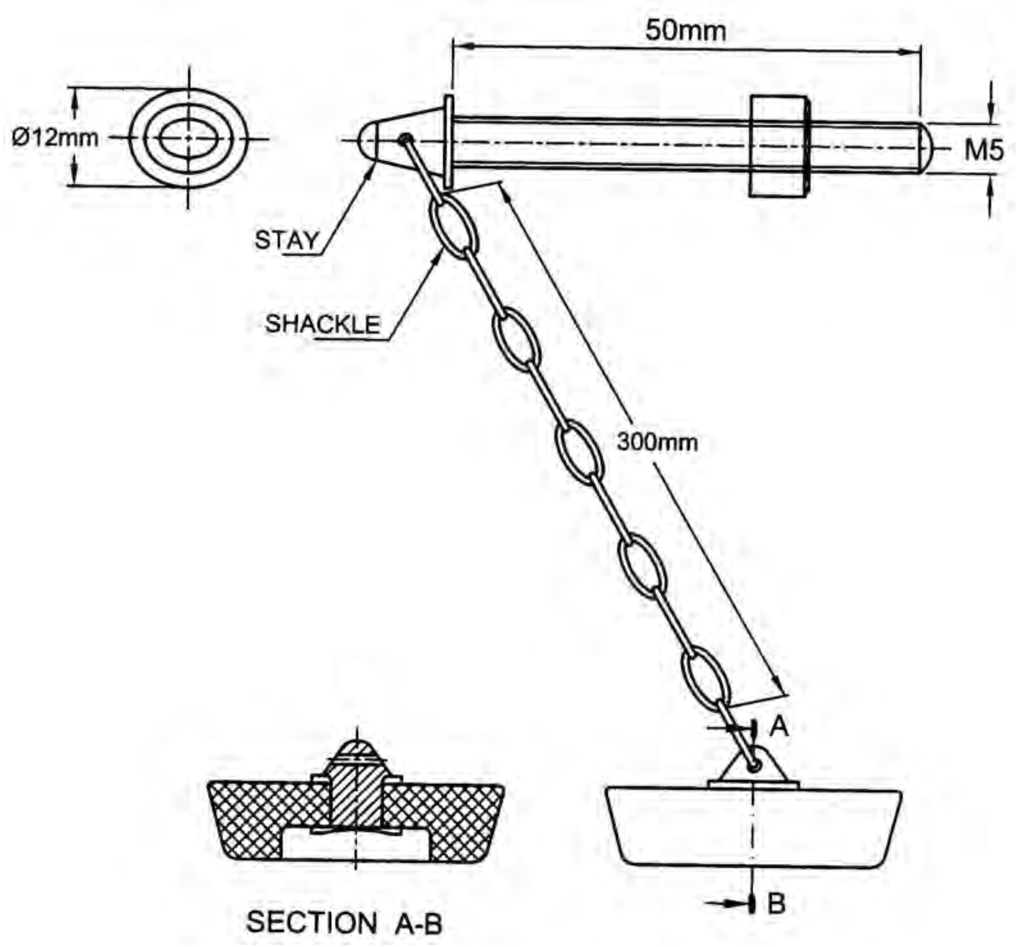


FIG. 9 TYPICAL DETAILS OF WASTE PLUG AND CHAIN WITH STAY FOR WASH BASIN AND SINK

Table 2 Dimensions of Waste Outlet for Wash Basin

(*Clause* 7.2.1)

All dimensions in milimetres.

Sl No. (1)	Particulars (*see* Figs. 1 to 4) (2)	Dimension (3)
i)	Fixing angle, *a*	110° *Min*
ii)	Body thread, *A*	G 1¼B
iii)	Back nut thread, *B*	G 1¼
iv)	Flange diameter of back nut, *C*	60 *Min*,
v)	Flange diameter of body, *E*	60 *Min*, 63 *Max*
vi)	Height of hexagon, *G*	5 *Min*
vii)	Height of un-threaded portion, *H*	36 *Max*
viii)	Height of un-threaded portion, *J*	12 *Max*
ix)	Thickness of flange, *K*	1 *Max*
x)	Height, *L*	70 *Min*
xi)	Height, *M*	50 *Min*
xii)	Length of thread for tightening connecting nut, *N*	6.5 *Min*
xiii)	Area of each slot, *O*	300 mm² *Min*

9 TESTING

9.1 Material

Material for different components shall conform to the requirements given in Table 1.

9.1.1 *Control Gauge for Waste Outlets*

The gauge exactly represents the waste outlet hole made in sanitary appliance. The gauge shall consist of two parts, namely Part A and Part B of shape and dimension as shown in Table 4.

9.1.1.1 Using Part A or Part A with Part B the waste outlet is supported in upper section of the gauge and the upper face of the waste outlet is not seen to project beyond the gauge and shaft of waste outlet can fit freely in bore of gauge.

9.1.1.2 Using Part A with Part B, the waste outlet is locked correctly on to the gauge.

Table 3 Dimensions of Waste Outlet for Sink

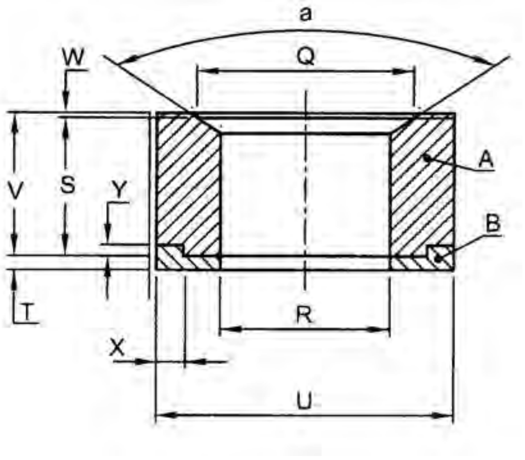
(*Clause* 7.2.1)

All dimensions in milimetres.

Sl No.	Particulars (*see* Figs. 5 to 8)	Dimension for Nominal Size	
		40	50
(1)	(2)	(3)	(4)
i)	Fixing angle, *a*	130° *Min*	130° *Min*
ii)	Body thread, *A*	G 1 1/2 B	G2B
iii)	Back nut thread, *B*	G 1 1/2	G2
iv)	Flange diameter of back nut, *C*	65 *Min*	80 *Min*
v)	Flange diameter of body, *E*	67 *Min*, 70 *Max*	80 *Min*, 85 *Max*
vi)	Height of hexagon, *G*	5 *Min*	5 *Min*
vii)	Height of un-threaded portion, *H*	42 *Max*	42 *Max*
viii)	Height of un-threaded portion, *J*	15 *Max*	15 *Max*
ix)	Thickness of flange, *K*	1 *Max*	1 *Max*
x)	Height, *L*	90 *Min*	90 *Min*
xi)	Height, *M*	70 *Min*	70 *Min*
xii)	Length of thread for tightening connecting nut, *N*	6.5 *Min*	6.5 *Min*
xiii)	Area of each slot, *O*	400 mm^2 *Min*	400 mm^2 *Min*
xiv)	Clamping height of waste outlet, *P*	66 *Max*	66 *Max*

Table 4 Dimensions of Control Gauge for Waste Outlet

(*Clauses* 9.1 *and* 9.1.1)



Sl No.	Legend	Dimension for Nominal Size		
		32	40	50
(1)	(2)	(3)	(4)	(5)
i)	*Q*	63.2	70.2	85.2
ii)	*R*	43	49	61
iii)	*W*	1	1	1
iv)	*S*	40	45	45
v)	*T*	5	5	5
vi)	*V*	41	46	46
vii)	*a*	100°	120°	120°
viii)	*Y*	5	5	5
ix)	*X*	10	10	10
x)	*U*	90	100	115

NOTE — General machine tolerance: $^{+0.1}_{-0}$.

9.2 Performance Test

All waste fittings shall be capable of complying with test specified in **9.2.1** and **9.2.2**.

9.2.1 *Load Test*

The complete assembly of waste plug and chain with stay shall be capable of withstanding a load of not less than 200 N (20 g) without visible deformation.

9.2.2 *Hydraulic Properties*

This test consists of determining the flow rate of water with a constant pressure head. The typical test apparatus is shown in Fig. 10.

9.2.2.1 *Procedure to determine flow rate*

Fit the waste outlet as shown in Fig. 10. Carry out the measurement with a water height of 120 mm after ensuring that the water level has stabilized.

The value of flow rate shall not be less than 0.6 litre/s.

10 MARKING

Each fitting or plug shall be legibly marked on any portion with the following:

a) Manufacturer’s name or trade-mark; and
b) Batch No./Date of manufacture.

10.1 BIS Certification Marking

The waste outlet may also be marked with Standard Mark.

10.1.1 The use of Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the rules and regulations made thereunder. The details of conditions under which a license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

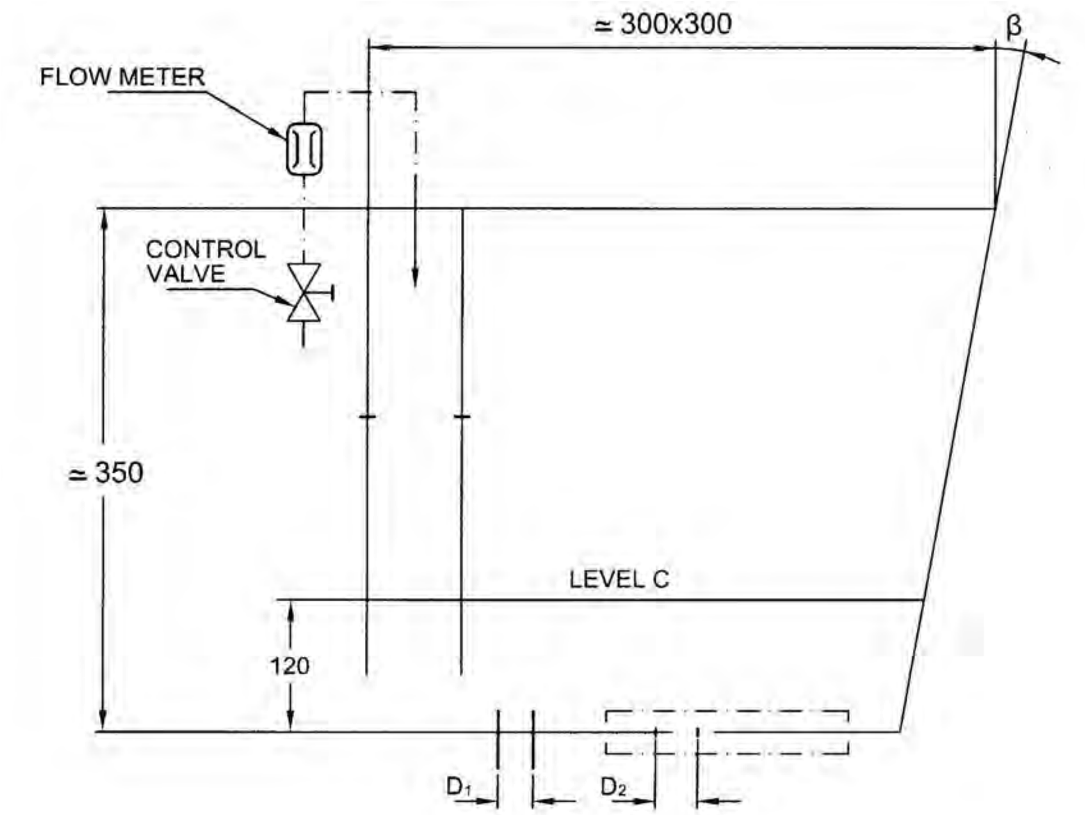


FIG.10 TYPICAL TEST APPARATUS FOR MEASURING FLOW RATE

β = 8°± 5°

D_1 = Diameter of basin waste outlet

C = Water level for waste outlet test

D_2 = Diameter of sink waste outlet

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
292 : 1983	Specification for leaded brass ingots and castings (*second revision*)
319 : 2007	Free cutting brass bars, rods and section — Specification (*fifth revision*)
410 : 1977	Specification for cold rolled brass sheet, strip and foil (*third revision*)
771 (Part 2) : 1985	Specification for glazed fire-clay sanitary appliances: Part 2 Specific requirements of kitchen and laboratory sinks (*third revision*)
1068 : 1993	Electroplated coatings of nickle plus chromium and copper plus nickle plus chromium — Specification (*third revision*)
1264 : 1997	Brass gravity die castings — Specification (*fourth revision*)
2556	Vitreous sanitary appliances (Vitreous China) — Specification
(Part 4) : 2004	Specific requirements of wash basins (*fourth revision*)
(Part 5) : 1994	Specific Requirements of laboratory sinks (*third revision*)
2643 : 2005	Pipe threads where pressure-tight joints are not made on the threads — Dimensions, tolerances and designation (*third revision*)
2704 : 1983	Specification for brass wires for cold-headed and machined parts (*first revision*)
5192 (Part 1) : 1994	Natural rubber compounds — Specification: Part 1 For moulded products (*second revision*)
6603 : 2001	Stainless steel bars and flats — Specification (*first revision*)
6912 : 2005	Copper and copper alloy forging stock and forging — Specification (*second revision*)
9975	Specification for 'O' rings
(Part 1) : 1981	Dimensions
(Part 2) : 1984	Material selection and quality acceptance criteria
(Part 3) : 1984	Seal housing dimension, tolerances and design criteria for standard applications
(Part 4) : 1984	Terminology and definition of terms
10446 : 1983	Glossary of terms relating to water supply and sanitation

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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